

## A REVISION OF THE FORMS OF THE HAIRY WOODPECKER (*DRYOBATES VILLOSUS* [LINNAEUS]).

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By HARRY C. OBERHOLSER,

*Assistant Ornithologist, Department of Agriculture.*

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A cursory examination of the hairy woodpeckers (*Dryobates villosus* [Linnaeus]), made some time ago, showed conclusively that they were much in need of revision. This task I finally undertook, largely at the request of Mr. Ridgway, who generously placed at my disposal all the material he had gathered, and all the measurements he had made for use in preparing his account of this species for the forthcoming fifth part of his "Birds of North and Middle America." This material consists of altogether 1,070 specimens, and comprises the collections of the United States National Museum, including that of the Biological Survey; the American Museum of Natural History; the Museum of Comparative Zoology at Cambridge, Massachusetts, including the Bangs collection; the Academy of Natural Sciences of Philadelphia; the Carnegie Museum of Pittsburg, Pennsylvania; and the Field Museum of Chicago. With this excellent series, which represents all the forms of the species, most of them very satisfactorily, it has been possible to work out the distribution of the various races in considerable detail, which the accompanying map graphically represents.

The hairy woodpecker, as a species, ranges from Alaska and northern Canada south to Panama, and has 14 currently recognized forms, which the present investigation increases to 20. It is preeminently a bird of the forest, and in eastern and northern North America frequents both lowlands and highlands indiscriminately; but in the arid western United States and Mexico perforce, in Central America apparently from choice, it is an inhabitant of the mountains. Most of the forms are sedentary, but three—*Dryobates villosus septentrionalis*, *Dryobates villosus villosus*, and *Dryobates villosus harrisi*—have a well-marked southward movement in autumn and winter. Nearly all conform very well to the boundaries of the life zones, as now understood, although they range usually through two or exceptionally even three zones. The distribution of a few of the

races is somewhat interesting, and is worthy of mention here. The Newfoundland bird, *Dryobates villosus terraenovae*, is most closely allied to *Dryobates villosus leucothorectis*,<sup>1</sup> from New Mexico and Arizona, and very different from the races that occupy the intervening 2,000 miles; while both *Dryobates villosus harrisi* and *Dryobates villosus picoideus*, from Alaska and British Columbia, approach much nearer, in color at least, to *Dryobates villosus hylobatus*<sup>2</sup> and *Dryobates villosus enissomenus*,<sup>3</sup> from central Mexico, than to the races that are geographically adjacent. The northern Bahama Islands are occupied by two forms, which have become differentiated, in the color of the lores, from all the other subspecies, probably by isolation. Furthermore, there is almost a regular increase of size toward the north, from the smallest race, *Dryobates villosus extimus*, of Panama, to the two largest, *Dryobates villosus monticola*, of Montana and British Columbia, and *Dryobates villosus septentrionalis* of Mackenzie and Alaska.

The adult female hairy woodpecker differs from the male only in somewhat smaller size and in the absence of the red occipital band. The juvenals of both sexes closely resemble the adults, except that nearly the whole top of the head is red.

In the measurements given under the various forms, none but perfectly typical specimens have been used, except in a few cases where such exclusion was rendered inadvisable by the smallness of the series available; for to include intermediates in measurement averages manifestly obscures the differences that really exist. The length of the tail is less reliable than other dimensions, as it is in all woodpeckers, since, on account of the unusual amount of wear to which the feathers are subject, it varies greatly. All measurements are in millimeters. In the lists of specimens examined, each locality is to be regarded as a breeding station unless specific statement is made to the contrary.

The following key may serve for an aid in distinguishing the various forms, in addition to setting forth their salient characters more clearly than do the descriptions.

KEY TO THE SUBSPECIES OF *DRYOBATES VILLOSUS*.

- a. Lores entirely white.
  - b. Inner webs of outer tail-feathers without black spots. *Dryobates villosus maynardi*.
  - b'. Inner webs of two or three outer pairs of tail-feathers with subterminal black spots..... *Dryobates villosus piger*.
- a'. Lores partly black.
  - b. Upper wing-coverts with many and conspicuous white spots.
    - c. Size smaller; spots on wing-coverts smaller; lower parts less purely white. *Dryobates villosus auduboni*.
    - c'. Size larger; spots on wing-coverts larger; lower parts usually pure white.
      - d. Smaller, wing of male usually less than 128 mm. (average, 120.9). *Dryobates villosus villosus*.

<sup>1</sup> See p. 608.

<sup>2</sup> See p. 617.

<sup>3</sup> See p. 614.

d'. Larger, wing of male usually more than 128 mm. (average, 132.4).

*Dryobates villosus septentrionalis.*

b'. Upper wing-coverts with few or no white spots.

c. Lower parts white or brownish white.

d. Lower surface pure white.

e. Larger, wing of male averaging more than 130 mm.

*Dryobates villosus monticola.*

e'. Smaller, wing of male averaging less than 130 mm.

f. Dorsal white stripe without spots or bars of black; superior wing-coverts with less white; size slightly smaller.

*Dryobates villosus leucothorectis.*

f'. Dorsal white stripe often with spots or bars of black; superior wing-coverts with more white; size slightly larger.

*Dryobates villosus terraenovae.*

d'. Lower surface brownish white.

e. Larger, wing of male over 126 mm. (averaging 129.1).

*Dryobates villosus orius.*

e'. Smaller, wing of male less than 126 mm. (averaging 121.7).

f. Bill much larger.....*Dryobates villosus hyloscopus.*

f'. Bill much smaller.....*Dryobates villosus icastus.*

c'. Lower parts smoky brown.

d. Lower surface lighter—usually light smoky brown.

e. Larger; ventral surface paler.....*Dryobates villosus intermedius.*

e'. Smaller; ventral surface usually darker.

f. Red occipital band of male wider; lower parts more rusty brown.

*Dryobates villosus fumeus.*

f'. Red occipital band of male more narrow; lower parts more grayish brown.

*Dryobates villosus enissomenus.*

d'. Lower surface darker—deep smoky brown.

e. Light dorsal stripe and white tail-feathers more or less spotted or barred with black.....*Dryobates villosus picoideus.*

e'. Light dorsal stripe and white tail-feathers without spots or bars of black.

f. Larger (wing of male usually more than 125 mm., averaging 127.8 mm.; exposed culmen usually more than 29 mm., averaging 31.7 mm.); lower parts paler, more grayish, brown....*Dryobates villosus harrisi.*

f'. Smaller (wing of male less than 125 mm., averaging under 124 mm.; exposed culmen less than 29 mm., averaging under 28 mm.); lower parts darker, more rufescent, brown.

g. Under surface lighter; size larger (wing of male more than 113 mm., averaging over 114 mm.).

h. Smaller (wing of male less than 120 mm.).

*Dryobates villosus jardinii.*

h'. Larger (wing of male more than 120 mm.).

*Dryobates villosus hylobatus.*

g'. Under surface darker; size smaller (wing of male less than 113 mm., averaging under 112 mm.).

h. Larger (wing of male usually more than 107 mm., averaging 109.4 mm.); dorsal stripe darker, more brownish.

*Dryobates villosus sanctorum.*

h'. Smaller (wing of male usually less than 107 mm., averaging 102.8 mm.); dorsal stripe paler, more whitish.

*Dryobates villosus extimus.*

## DRYOBATES VILLOSUS VILLOSUS (Linnaeus).

*Picus villosus* LINNAEUS, Syst. Nat., ed. 12, vol. 1, 1766, p. 175.

*Picus leucomelas* BODDAERT, Tabl. Planch. Enlum., 1783, No. 345, fig. 1, p. 21 (Canada).

*Picus canadensis* GMELIN, Syst. Nat., vol. 1, pt. 1, 1788, p. 437 (Canada).

*Picus leucomclanus* WAGLER, Syst. Avium, 1827, *Picus* No. 18, p. 20 (Canada).

*Picus martini* AUDUBON, Birds Amer. (folio), vol. 4, 1838, pl. 417, figs. 1, 2 (Toronto, Ontario, Canada).

*Picus philippsi* AUDUBON, Birds Amer. (folio), vol. 4, 1838, pl. 417, figs. 5, 6 (Massachusetts).

*Picus martinæ* AUDUBON, Ornith. Biog., vol. 5, 1839, p. 181 (Toronto, Ontario, Canada) (nom. emend. pro *Picus martini* AUDUBON).

*Picus villosus*, var. *medius* BAIRD, Rep. Explor. and Surv. R. R. Pac., vol. 9, 1858, p. 84 (Middle States [of United States]).

*Chars. subsp.*—Size medium (wing of male averaging 120.9 mm.); lower parts white; upper wing-coverts heavily spotted with white.

*Description.*—Adult male, No. 101565, U.S.N.M.; Chester County, Pennsylvania, January 6, 1885; B. H. Warren. Upper parts generally, sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; occipital band scarlet; nasal tufts grayish white; a broad superciliary stripe, a broad rictal stripe prolonged to the side of the cervix, a broad dorsal stripe, large spots on both webs of remiges, and on most of the upper wing-coverts, with all of the two outer rectrices (including the dwarfed outermost one), most of the third, and terminal portion of fourth, and entire lower surface of body, pure white.

*Measurements.*—Male:<sup>1</sup> Wing, 118–124 (average, 120.9) mm.; tail, 65–77 (71.7); exposed culmen, 27–33 (29.4); tarsus, 21–23 (22); middle toe, 13–15.5 (14.5).

Female:<sup>2</sup> Wing, 115–121.5 (118.6); tail, 69–78.5 (73.5); exposed culmen, 25–30 (26.9); tarsus, 20–22.5 (21); middle toe, 13–14.5 (13.9).

*Type-locality.*—Racoon, New Jersey (ex Kalm).

*Geographical distribution.*—Canadian, Transition, and Upper Austral zones of the eastern United States and southern Canada: east to the Atlantic coast; north to Nova Scotia; New Brunswick; Magdalen Islands, Gaspé Peninsula, and Rideau River (near city of Quebec), in southern Quebec; Emsdale, south central Ontario; and Moose Lake, southwestern Keewatin; west to Manitoba; central North Dakota; central South Dakota; central Nebraska; Dry Willow Creek (Yuma County) and Fowler, in eastern Colorado; and Lipscomb and San Angelo, in middle Texas; south to Mason, central Texas; Van Buren, central western Arkansas; Endy, southeastern Missouri; Odin, southern Illinois; Brookville, southern Indiana; Guthrie, southwestern Kentucky; Huntsville, northern Alabama; Mitchell County, northwestern North Carolina; Washington County, southwestern

<sup>1</sup> Twenty specimens, from New York, Pennsylvania, Maryland, and the District of Columbia.

<sup>2</sup> Seventeen specimens, from the same localities.



Virginia; and central Virginia. In winter it occurs south to Raleigh, central North Carolina; Wheatland, southwestern Indiana; and Mount Carmel, southeastern Illinois.

This, the first form of the species to receive a binomial name, is really an intermediate between the small Florida *Dryobates villosus audubonii*, on the one hand, and the large Canadian *Dryobates villosus septentrionalis*, on the other, from both of which it differs chiefly in size. The amount of difference between birds from Florida and those from Mackenzie, Canada, is, however, very great, and it seems much better to recognize three forms than to divide all the birds from the wide middle area between only two—a large northern and a small southern race. Further division of these eastern birds does not, however, after careful study, appear to be advisable. Specimens from the States of New York, Pennsylvania, and Maryland, which are of practically the same size, seem most satisfactorily to represent the middle race, *Dryobates villosus villosus*, the type of which came from New Jersey; and these have, therefore, been taken to establish the standard of size. With this criterion, fairly satisfactory ranges may be worked out, which, in a general way, are seen to correspond to the currently accepted life zones.

Examples from southern Ontario and from New Brunswick average noticeably larger than those from Pennsylvania and New York, the difference being about 4 mm. in the length of the wing, but they are evidently referable to *D. v. villosus*. Two breeding birds from southeastern Maine are large enough for *Dryobates villosus septentrionalis* (wings, respectively, 129 and 130 mm.), but surrounded, as they are, by smaller birds, it seems best to consider them abnormal individuals of *D. v. villosus*. Specimens from western North Carolina and middle and eastern Tennessee average smaller (2 to 3 mm. in length of wing) than typical *D. v. villosus*, and have also somewhat less white on the wing-coverts, but are nevertheless nearer this form than to *Dryobates villosus audubonii*.

The hairy woodpecker was first described by Linnaeus as *Picus villosus*,<sup>1</sup> and based upon Kalm,<sup>2</sup> Catesby,<sup>3</sup> and Brisson.<sup>4</sup> Kalm's bird is from New Jersey, and represents the middle eastern race; Catesby's from South Carolina, and thus the form now called *Dryobates villosus audubonii*; while Brisson's is a mixture of the two, but applies chiefly and properly to the former. The first author to restrict the name *villosus* was Swainson,<sup>5</sup> who described the small southern bird as *Picus audubonii*,<sup>5</sup> and called the more northern form *Picus villosus*. This arrangement has been generally followed by subsequent authors; and there is no reason why it should now be changed.

<sup>1</sup> Syst. Nat., ed. 12, vol. 1, 1766, p. 175.

<sup>2</sup> Resa Norra Amer., vol 3, 1761, p. 43.

<sup>3</sup> Nat. Hist. Carolina, vol. 1, 1731, p. 19, pl. 19.

<sup>4</sup> Ornith., vol. 4, 1760, p. 48.

<sup>5</sup> Fauna Bor.-Amer., vol. 2, 1831 (1832), p. 306.

The *Picus martini* of Audubon,<sup>1</sup> from Toronto, Ontario; his *Picus philippsi*,<sup>2</sup> from Massachusetts; and his *Picus martinæ*,<sup>3</sup> are all referable to the present race, as their measurements clearly indicate. The *Picus villosus*, var. *medius* of Baird<sup>4</sup> also evidently belongs here. The status of *Picus leucomelas* Boddaert,<sup>5</sup> *Picus canadensis* Gmelin,<sup>6</sup> and *Picus leucomelanus* Wagler,<sup>7</sup> which have commonly been referred to the large northern Canada race, are fully discussed under *Dryobates villosus septentrionalis*.<sup>8</sup>

Of this form, 115 specimens have been examined, from the following localities:

*Keewatin*.—Moose Lake.

*Manitoba*.—Lake Manitoba; Carberry.

*New Brunswick*.—Gulquac Lake (Victoria County); Forks of Tobique River (Victoria County); Restigouche River.

*Nova Scotia*.—Yarmouth; Wolfville; Newport.

*Ontario*.—Toronto; Emsdale.

*Alabama*.—Huntsville.

*Arkansas*.—Van Buren.

*Colorado*.—Dry Willow Creek (Yuma County); Lamar; Holly; Swink; Fowler.

*Connecticut*.—Washington; Lyme.

*District of Columbia*.—Rock Creek; Takoma.

*Illinois*.—Grand Chain; Lewistown; Jacksonville; Worth; McHenry; Mount Carroll; Lake Forest; Mount Carmel.<sup>9</sup>

*Indiana*.—Brookville; Wheatland.<sup>9</sup>

*Iowa*.—Hardin County; Knoxville; Winnebago County; Delaware; Dickinson County.

*Kansas*.—[No further locality.]

*Kentucky*.—Barbourville; Lexington; Guthrie.

*Maine*.—Sebec Lake; Upton; South Twin Lake (Penobscot County); Turkey Tail; Columbia Falls; King and Bartlett Lake (Somerset County).

*Maryland*.—Finzel; Bittinger; Takoma; Prince George County; Laurel; Jefferson.

*Massachusetts*.—Newton; Cambridge; Brookline; Belmont; Wayland; Newtonville; Cotuit; Lincoln; Waltham; Lexington.

*Michigan*.—Manchester; McKinley (Oscoda County); Kalamazoo County; Washington Harbor, Isle Royale.

*Minnesota*.—Hinckley; Fort Snelling; Kittson County.

*Missouri*.—Marble Cave; Thayer; Casto Valley, near Endy (Shannon County); Spring Valley, near Endy (Shannon County).

<sup>1</sup> Birds Amer. (folio), vol. 4, 1838, pl. 417, figs. 1, 2.

<sup>2</sup> Birds Amer. (folio), vol. 4, 1838, pl. 417, figs. 5, 6.

<sup>3</sup> Ornith. Biog., vol. 5, 1839, p. 181.

<sup>4</sup> Rep. Explor. and Surv. R. R. Pac., vol. 9, 1858, p. 84.

<sup>5</sup> Tabl. Planch. Enlum., 1783, p. 21.

<sup>6</sup> Syst. Nat., vol. 1, pt. 1, 1788, p. 437.

<sup>7</sup> Syst. Avium, 1827, Picus No. 18, p. 20.

<sup>8</sup> See p. 604.

<sup>9</sup> Not breeding at this locality.

*New Hampshire*.—Shelburne; Epsom; Franconia; Hampton; Ossipee.

*New Jersey*.—Cape May County; Egg Harbor; Tuckerton; Hoboken; Haddonfield.

*New York*.—Steuricke; Canandaigua; Stamford; Highland Falls; Lake Grove; Plateau Mountain, Catskill Mountains; Chataugay Lake; Ithaca; Syracuse; Long Island; Saint Regis Lake; Leyden; Hilton (Monroe County); Kiskatom; Suspension Bridge.

*North Carolina*.—Mitchell County; Raleigh.<sup>1</sup>

*Pennsylvania*.—Shade Gap (Huntington County); Mapleton; Belsano; Greenwood Furnace; Ohio Pyle; Crumb; Kimbleville (Chester County); Westtown; Wilkinsburg; Riddlesburg; Carlisle; West Goshen; Erie; Coudersport; Leasuresville; Bear Lake (Warren County); Laughlinstown; Conneaut Lake; Spruce Creek; Cherry Spring (Potter County).

*South Dakota*.—Fort Randall.

*Tennessee*.—Lexington; Cross Mountain; Briceville; High Cliff; Rockwood; Roan Mountain.

*Texas*.—Lipscomb; Cisco; Carbon; Eastland County.

*Vermont*.—Clarendon.

*Virginia*.—Prince William County; Gainesville; Falls Church; Washington County.

*Wisconsin*.—Kenosha; Sayner; Solon Springs; Camp Douglas; De Pere; Beloit; Woodruff (Vilas County).

#### DRYOBATES VILLOSUS AUDUBONII (Swainson).

*Picus audubonii* SWAINSON, Fauna Bor.-Amer., vol. 2, 1831 (1832), p. 306.

*Picus villosus*, var. *minor* BAIRD, Rep. Explor. and Surv. R. R. Pac., vol. 9, 1858, p. 85 (Southern States [of United States]).

*Chars. subsp.*—Similar to *Dryobates villosus villosus*, but smaller; white spots on upper wing-coverts smaller and less numerous.

*Measurements*.—Male:<sup>2</sup> Wing, 110.5–117.5 (average, 113.9) mm.; tail, 58–69 (65.1); exposed culmen, 26.5–30.5 (28.3); tarsus, 19.5–21.5 (20.6); middle toe, 13–14.5 (13.7).

Female:<sup>3</sup> Wing, 108.5–115.5 (112.6); tail, 59–70 (64.8); exposed culmen, 25–27.5 (26.2); tarsus, 19–20 (19.5); middle toe, 12.5–14 (13.2).

*Type-locality*.—Georgia, U. S. A.

*Geographical distribution*.—Lower Austral Zone of the southeastern United States: east to the Atlantic seaboard; south to the Gulf of Mexico, and in Florida to Bassinger and Fort Meyer; north to Lake Drummond, southeastern Virginia; Raleigh, central North Carolina; Caesar's Head, northwestern South Carolina; central Georgia; cen-

<sup>1</sup> Not breeding at this locality.

<sup>2</sup> Ten specimens, from Florida.

<sup>3</sup> Ten specimens, from Florida and southern Georgia.

tral Alabama; Burnsville, northeastern Mississippi; central Arkansas; and up the Mississippi and Ohio valleys to Cushion Lake, in southeastern Missouri, Sugar Creek Prairie (Richland County) and Mount Carmel, in southeastern Illinois, and Wheatland in southwestern Indiana; west to Jefferson and Austin in eastern Texas.

Birds from Florida are very small and have least white on the wing-coverts, representing thus the extreme development of this form, and for this reason we have used them as the basis of comparisons.

Specimens from southern Georgia, Louisiana, and eastern Texas are quite as small as those from Florida, but in South Carolina and North Carolina they become somewhat larger. A single adult male from Lake Drummond, Dismal Swamp, southeastern Virginia, is considerably larger, and verges toward *Dryobates villosus villosus*, but has a smaller amount of white on the wing-coverts, and seems to be nearer the present race. Breeding birds from the *bottomlands* of the lower Wabash Valley, in Richland and Wabash counties, southeastern Illinois, and in Knox County, southwestern Indiana, while somewhat larger than typical *D. v. audubonii*, are, nevertheless, nearer to this than to *D. v. villosus*; which latter form, however, occupies the neighboring uplands, and descends to the river bottoms in winter.

I have examined 112 examples of this race, representing the following localities:

*Arkansas*.—Mississippi County; Armorer.

*Florida*.—Enterprise; Whitfield; Mullet Lake; Kissimmee River at Fort Gardner; Arbuckle; Osceola County; Moses Creek; Pilot Town; Jacksonville; Winter Park; Hibernia; Lake Hatch-ne-haw; Kissimmee; Lake Kissimmee; San Mateo; Fort Thompson; Tarpon Springs; Magnolia; Welaka; Rosewood; Smyrna; Sebastian River; Hollyhill.

*Georgia*.—LeConte Plantation, Riceboro; Washington County; St. Marys; Liberty County.

*Illinois*.—Sugar Creek Prairie (Richland County); Mount Carmel; Mound City; Olive Branch.

*Indiana*.—Wheatland.

*Louisiana*.—Houma; Natchitoches; Belair; Mandeville.

*Mississippi*.—Burnsville; Washington.

*Missouri*.—Cushion Lake.

*North Carolina*.—Raleigh.

*South Carolina*.—Lanes; Kershaw County; Mount Pleasant; Aiken County; Port Royal; Caesar's Head.

*Texas*.—Giddings; Hempstead; Sour Lake; Jefferson.

*Virginia*.—Lake Drummond, Dismal Swamp.

## DRYOBATES VILLOSUS MAYNARDI Ridgway.

*Picus insularis* MAYNARD, Sale Catalogue Bahama Birds, Aug. 1, 1884, p. — (nec *Picus insularis* GOULD, 1862, qui *Dryobates insularis* [GOULD]).

*Dryobates villosus maynardi* RIDGWAY, Man. North Amer. Birds, 1887, p. 282 (nom. nov. pro *Picus insularis* Maynard, praeocc.).

*Chars. subsp.*—Similar to *Dryobates villosus audubonii*, but lores entirely white, instead of mostly black; wing-coverts more heavily spotted with white; size smaller.

*Measurements.*—Male:<sup>1</sup> Wing, 103–109 (average, 107.3) mm.; tail, 61.5–68 (65.2); exposed culmen, 26–29.5 (27.7); tarsus, 19–20.5 (19.8); middle toe, 13–14.5 (13.7).

Female:<sup>2</sup> Wing, 100.5–108.5 (104); tail, 61–68.5 (63.9); exposed culmen, 23.5–27 (25); tarsus, 17.5–19.5 (19); middle toe, 12.5–13.5 (12.8).

*Type-locality.*—Nassau, New Providence Island, Bahama Islands.

*Geographical distribution.*—Bahaman Upper Tropical Zone, on New Providence and Andros Islands, Bahama Islands.

Specimens from the island of Andros are practically identical in measurements with those from New Providence Island.

Forty specimens have been available, from the subjoined localities:

*Bahama Islands.*—Nassau, New Providence Island; Blue Hills, New Providence Island; south side of New Providence Island; Southern Bight, Andros Island; Staniard Creek, Andros Island; Nicol's Town, Andros Island; Red Bays, Andros Island.

## DRYOBATES VILLOSUS PIGER G. M. Allen.

*Dryobates villosus piger* G. M. ALLEN, Auk, vol. 22, 1905, p. 124.

*Chars. subsp.*—Similar to *Dryobates villosus maynardi*, but outer (long) tail-feathers usually with black spots on terminal portion of inner webs.

*Measurements.*—Male:<sup>3</sup> Wing, 105.5–110 (average, 107) mm.; tail, 62.5–65.5 (64); exposed culmen, 27.5–29.5 (28.5); tarsus, 20–20.5 (20.3); middle toe, 12.5–14 (13.4).

Female:<sup>4</sup> Wing, 100–109.5 (104.2); tail, 60–68 (63.3); exposed culmen, 22.5–27 (24.4); tarsus, 18–20.5 (19); middle toe, 12–14 (13).

*Type-locality.*—Great Bahama Island, Bahama Islands.

*Geographical distribution.*—Bahaman Upper Tropical Zone, on Abaco and Great Bahama islands, Bahama Islands.

While the character of spots on the rectrices, which distinguishes this race from *Dryobates villosus maynardi*, is not entirely constant, it is sufficiently so to warrant the recognition of *Dryobates villosus piger*.

<sup>1</sup> Thirteen specimens, from the islands of Andros and New Providence, Bahama Islands.

<sup>2</sup> Thirteen specimens, from the same two islands.

<sup>3</sup> Six specimens, from the islands of Abaco and Great Bahama, Bahama Islands.

<sup>4</sup> Twelve specimens, from the same two islands.



Birds from Abaco Island are of practically the same size as those from the island of Great Bahama.

Specimens examined, 19, from the localities that follow:

*Bahama Islands*.—Abaco Island; Great Bahama Island.

**DRYOBATES VILLOSUS SEPTENTRIONALIS (Nuttall).**

*Dryobates villosus leucomelas* Auctt. rec., nec Boddaert.

*Picus septentrionalis* NUTTALL, Man. Ornith. U. S. and Canada, ed. 2, vol. 1, 1840, p. 684.

*Picus villosus*, var. *major* BAIRD, Rep. Explor. and Surv. R. R. Pac., vol. 9, 1858, p. 84 (northern and western regions [of North America]).

*Picus cuvieri* MALHERBE, Mon. Piciées, vol. 1, 1861, p. 85, pl. xxii, fig. 3 (North America).

*Chars. subsp.*—Similar to *Dryobates villosus villosus*, but decidedly larger.

*Measurements.*—Male:<sup>1</sup> Wing, 128–138 (average, 132.4) mm.; tail, 77.5–87 (83.5); exposed culmen, 31.5–37.5 (35.8); tarsus, 22–25 (23.5); middle toe, 14.5–16 (15.3).

Female:<sup>2</sup> Wing, 128–136.5 (130.8); tail, 78.5–90.5 (84.8); exposed culmen, 29.5–33.5 (31.7); tarsus, 22–23.5 (22.7); middle toe, 13.5–15.5 (14.4).

*Type-locality.*—Saskatchewan River, Saskatchewan, Canada.

*Geographical distribution.*—Hudsonian and Canadian zones of northern North America: east to the Eskimo River, northeastern Quebec [formerly Labrador]; south to Pointe de Monts (probably) and Temiskaming, in central Quebec; northern Ontario; southeastern and south central Keewatin; Fort Union, northwestern North Dakota; Glasgow and Big Snowy Mountains, in northeastern Montana; southern Alberta; and Soda Creek (Caribou District), south central British Columbia; west to Fort Grahame, north central British Columbia; and Homer (Kenai Peninsula), middle southern Alaska; north to Fort Reliance, central Yukon; Lake Hardisty, central Mackenzie; Fort Churchill, central Keewatin; Moose Factory, northern Ontario; and the Hamilton River, northern Quebec. In winter it wanders southward as far as Rat Portage, western Ontario; Roseau River (Kittson County), northern Minnesota; Fort Randall, southern South Dakota; Harrison, northwestern Nebraska; Fort Keogh and Corvallis, south central Montana; and the Similkameen River, southern British Columbia.

There is surprisingly little difference in size in this subspecies between examples from Montana and those from Mackenzie and Alaska. Birds from northern Montana and central British Columbia have somewhat less white on the superior wing-coverts, showing thus a tendency toward *Dryobates villosus monticola*. A single summer female from

<sup>1</sup> Twelve specimens, from Montana, Saskatchewan, and Mackenzie.

<sup>2</sup> Nine specimens, from Quebec, Alberta, Mackenzie, Yukon, and Alaska.

Temiskaming, Quebec, is rather small, but altogether too large for *Dryobates v. villosus*, and doubtless represents the breeding form of that region. This is the southernmost breeding locality for *Dryobates v. septentrionalis* in eastern North America.

This large northern hairy woodpecker has hitherto been called *Dryobates villosus leucomelas* (Boddaert),<sup>1</sup> apparently because of the Canadian habitat assigned; but an examination of the origin of this name shows this view to be erroneous. Boddaert based his *Picus leucomelas*<sup>2</sup> on D'Aubenton's Planches Enluminées, No. 345, fig. 1; Buffon's "Épéiche du Canada"; and Brisson's "*Picus varius canadensis*"<sup>3</sup>. Buffon derived his description wholly from Brisson, so the matter resolves itself into an identification of D'Aubenton's plate and Brisson's description. Fortunately the measurements given by Brisson, of which the most satisfactory is the length of the bill, and the dimensions obtainable from D'Aubenton's drawing leave no doubt that the bird of both is altogether too small for the large race of northern Canada, and is none other than typical *Dryobates villosus villosus* of southern Canada and the northeastern United States. Boddaert's name<sup>4</sup> becomes therefore a synonym of *Dryobates villosus villosus*. Gmelin's *Picus canadensis*<sup>5</sup> and Wagler's *Picus leucomelanus*<sup>6</sup> have practically the same basis as Boddaert's name, and are consequently identical in application. The earliest tenable subspecific term for the present race becomes, therefore, (*Picus*) *septentrionalis* of Nuttall,<sup>7</sup> which is a new name for *Picus canadensis* Audubon,<sup>8</sup> not Gmelin.

Forty-four specimens have been examined, and the following localities are represented:

*Alaska*.—Homer.

*Alberta*.—Canadian National Park; Grand Cache River, 70 miles north of Jasper; Grand Cache, Smoky River; Smith Landing, Slave River; near outlet of Athabaska Lake.

*British Columbia*.—Soda Creek (Caribou District); Fort Grahame; Similkameen River.<sup>9</sup>

*Mackenzie*.—Fort Liard; Liard River; Fort Smith; Fort Simpson; Fort Providence; Fort Resolution.

*Ontario*.—Toronto;<sup>9</sup> Rat Portage;<sup>9</sup> New Liskeard.

*Quebec*.—Temiskaming.

*Saskatchewan*.—Wingard; Saint Louis.

<sup>1</sup> *Picus leucomelas* Boddaert, Tabl. Planch. Enlum., 1783, No. 345, fig. 1, p. 21.

<sup>2</sup> Tabl. Planch. Enlum., 1783, No. 345, fig. 1.

<sup>3</sup> Ornith., vol. 4, 1760, p. 45.

<sup>4</sup> *Picus leucomelas*, Tabl. Planch. Enlum., 1783, p. 21.

<sup>5</sup> Syst. Nat., vol. 1, 1788, p. 437.

<sup>6</sup> Syst. Avium, 1827, *Picus* No. 18, p. 20.

<sup>7</sup> Man. Ornith. U. S. and Canada, ed. 2, vol. 1, 1840, p. 684.

<sup>8</sup> Ornith. Biog., vol. 5, 1839, p. 188.

<sup>9</sup> Not breeding at this locality.

*Yukon*.—Fifty-mile River, Yukon River; Fort Reliance.

*Minnesota*.—Roseau River (Kittson County).<sup>1</sup>

*Montana*.—Big Snowy Mountains; Glasgow; Fort Keogh; <sup>1</sup> Corvallis.<sup>1</sup>

*Nebraska*.—Harrison (Sioux County).<sup>1</sup>

*North Dakota*.—Fort Union; Pembina.<sup>1</sup>

*South Dakota*.—Fort Randall.<sup>1</sup>

**DRYOBATES VILLOSUS MONTICOLA** Anthony.

*Dryobates villosus montanus* ANTHONY, Auk, vol. 13, 1896, p. 32 (nec *Picus montanus* BREHM, qui *Dryobates major* [LINNAEUS]).

[*Dryobates villosus*] *monticola* ANTHONY, Auk, vol. 15, 1898, p. 54 (nom. nov. pro *Dryobates villosus montanus* ANTHONY, praecoc.).

*Chars. subsp.*—Similar to *Dryobates villosus septentrionalis*, but upper wing-coverts with few and small white spots or none.

*Measurements*.—Male: <sup>2</sup> Wing, 130–137.5 (average, 133.3) mm.; tail, 78.5–89.5 (82.5); exposed culmen, 28–34 (32.6); tarsus, 22–24.5 (22.7); middle toe, 14–16 (14.7).

Female: <sup>3</sup> Wing, 126.5–134.5 (131.1); tail, 71.5–87.5 (79.8); exposed culmen, 28–31 (29.5); tarsus, 21.5–23.5 (22.1); middle toe, 13.5–15.5 (14.3).

*Type-locality*.—Boulder County, Colorado.

*Geographical distribution*.—Canadian and Transition zones in the Rocky Mountains of the United States and southern British Columbia: south to the town of Florida, in southwestern Colorado; and Pecos Baldy, central northern New Mexico; east to Chico Springs, northeastern New Mexico; Pueblo, Denver, and Loveland, in eastern Colorado; Laramie Peak, southeastern Wyoming; Harrison, northwestern Nebraska; Elk Mountain, western South Dakota; and Fort Keogh, eastern Montana; north to the Big Bend of the Mussellshell River, central Montana; Chief Mountain Lake, northwestern Montana; and Lac La Hache, south central British Columbia; west to the Similkameen River, central southern British Columbia; Conconully and Spokane, northeastern Washington; the Sawtooth Mountains and Bridge, middle Idaho; Parley's Park (Wasatch Mountains) and the Uinta Mountains, in northeastern Utah; and Rio Blanco County and Montrose, western Colorado.

This race differs from the eastern *Dryobates villosus villosus* as from *Dryobates villosus septentrionalis*, and additionally in much greater size. It nearly always has a little white on the wing-coverts, but this is sometimes absent. Birds from Montana have more of such white spotting than those from typical regions, and are more or less inter-

<sup>1</sup> Not breeding at this locality.

<sup>2</sup> Ten specimens, from Colorado, Wyoming, South Dakota, and Montana.

<sup>3</sup> Eight specimens, from Colorado, Utah, Idaho, and Montana.

mediate between the present form and *Dryobates villosus septentrionalis*.

Of this subspecies, 134 examples have been available in the present connection, these representing the following localities:

*British Columbia*.—Similkameen River; Crater Mountain, Ashnola River; Vernon; Lac La Hache; Okanogan; Okanogan Landing; Okanogan Mission; between Penticton and Okanogan; Ashcroft; Kamloops.

*Colorado*.—Estes Park; Rio Blanco County; Reed Mills; Montrose; Deer Creek; Fort Garland; Pueblo; Colorado City; Colorado Springs; Pagosa; Denver; Boulder; Loveland; Palmer Lake; Florida (La Plata County).

*Idaho*.—Salmon River Mountains; Priest Lake; Bridge.

*Montana*.—Stillwater; Saint Marys Lake; Summit; Bear Tooth Lake; Fort Custer; Lame Deer; Fort Keogh; Chief Mountain Lake; Hellgate; Jefferson River; Fort Benton; Cinnabar; Florence; Big Bend of Musselshell River; Darnall's; Zortman; Bitterroot Valley.

*Nebraska*.—Harrison (Sioux County); Squaw Canyon (Sioux County).

*New Mexico*.—Tierra Amarilla; Pecos Baldy; Costilla River; Twinning; Tres Piedras; Cieneguilla; Arroyo Seco; La Jara Lake; Oak Canyon, Raton Range; Stinking Spring Lakes; Arroyo Hondo; Santa Clara Canyon; Chico Springs.

*South Dakota*.—Elk Mountain.

*Utah*.—Uinta Mountains; Parley's Park (Wasatch Mountains).

*Washington*.—Fort Spokane; Usk (Stevens County); Conconully.

*Wyoming*.—Powder River; La Barge Creek; Wind River Mountains; South Pass City; Devils Tower; Springhill; Shirley Mountains; Rawhide Butte; Fort Bridger; Laramie Peak; Green River; Pahaska; Valley; Head of Trapper's Creek, Bighorn Mountains; Crook County.

#### DRYOBATES VILLOSUS TERRAENOVAE Batchelder.

*Dryobates villosus terraenovae* BATCHELDER, Proc. New Engl. Zool. Club, vol. 4, June 24, 1908, p. 37.

*Chars. subsp.*.—Similar to *Dryobates villosus monticola*, but smaller; upper wing-coverts with somewhat more white; white dorsal stripe often spotted or irregularly barred with black.

*Measurements*.—Male:<sup>1</sup> Wing, 126–133.5 (average, 128.4) mm.; tail, 80.5–90 (83.4); exposed culmen, 29.5–32 (30.7); tarsus, 21.5–23.5 (22.4), middle toe, 15–16 (15.4).

Female:<sup>2</sup> Wing, 122–128 (124.8); tail, 80.5–86 (82.8); exposed culmen, 25.5–27 (26.3); tarsus, 21.5–23.5 (22.2); middle toe, 14–15 (14.6).

*Type-locality*.—Placentia, Newfoundland.

<sup>1</sup> Six specimens, from Newfoundland.

<sup>2</sup> Five specimens, from Newfoundland.

*Geographical distribution.*—Canadian and Hudsonian zones of Newfoundland.

As is the case with so many Newfoundland or Labrador races of birds, this hairy woodpecker is really much more like some of the western forms than it is like either *Dryobates villosus villosus*, or *Dryobates villosus septentrionalis*, the subspecies which lie geographically nearest. It is closest to *Dryobates villosus leucothorectis*<sup>1</sup> from New Mexico and Arizona, but differs in slightly larger size, particularly of the tail and middle toe; in having white spots on the wing-coverts, and often black spots or bars on the white dorsal stripe. It may readily be distinguished from *Dryobates villosus villosus* by its larger size, much less conspicuously white spotted lesser and middle wing-coverts, and the often black spotted or barred white dorsal stripe; and from *Dryobates v. septentrionalis* by the same color characters, as well as by shorter wing and bill.

The mixture of black in the white dorsal stripe, a character shared by only *Dryobates villosus piceoides*, although not constant, appears in many specimens. In some examples of *D. v. terraenovae*, black spots on the tail-feathers may be noticed.

We have seen 11 examples of this form, from the following localities:

*Newfoundland.*—Codroy; Locke's Cove; Humber River; Canada Bay.

**DRYOBATES VILLOSUS LEUCOTHORECTIS, new subspecies.**

*Chars. subsp.*—Much like *Dryobates villosus monticola*, but decidedly smaller; wing coverts practically always without white spots.

*Description.*—Type, adult male, No. 196291, U.S.N.M., Biological Survey collection; Burley, New Mexico, September 19, 1905; N. Hollister. Upper parts generally, sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; occipital band scarlet; nasal tufts grayish white; a broad superciliary stripe, a broad rictal stripe produced to the side of the nape, a broad dorsal stripe, spots on both webs of all the remiges except the tertials, small spots on a few of the upper wing-coverts, all of the two outer rectrices (including the dwarfed outermost one), most of the third, and terminal portion of the fourth, and entire under surface of body, pure white.

*Measurements.*—Male:<sup>2</sup> Wing, 123.5–131 (average, 126.8) mm.; tail, 75.5–86.5 (79.4); exposed culmen, 28.5–33 (30.8); tarsus, 20–22.5 (21.5); middle toe, 12.5–15.5 (13.8).

Female:<sup>3</sup> Wing, 120.5–128 (123.6); tail, 73–83 (77.8); exposed culmen, 24–27.5 (25.9); tarsus, 20–22 (20.8); middle toe, 13–14.5 (13.5).

<sup>1</sup> See p. 608.

<sup>2</sup> Sixteen specimens, from Utah, Arizona, and New Mexico.

<sup>3</sup> Ten specimens, from Arizona, New Mexico, and western Texas.



*Type-locality*.—Burley, New Mexico.

*Geographical distribution*.—Canadian and Transition zones in the mountains of the interior southwestern United States: north to the Beaver Mountains, south central Utah; Shiprock, northwestern New Mexico; and San Pedro, north central New Mexico; east to the Capitan Mountains, east central New Mexico; and the Guadalupe Mountains, central western Texas; south to the San Andres Mountains and Silver City, southern New Mexico; and Weber Creek (Tonto Basin), central Arizona; west to the Hualapai Mountains, western Arizona; and Pine Valley, southwestern Utah.

The present form differs from *Dryobates villosus hyloscopus*, of northern Lower California and southern California, in longer wing and tail, and in pure white lower parts. There is practically no difference in size between specimens from Arizona and those from most of New Mexico. Those, however, from southwestern New Mexico (Kingston, Cliff, Gila, and Mimbres to Rio Grande) are smaller, and thus intermediate in dimensions between *D. v. leucothorectis* and *Dryobates villosus icastus*,<sup>1</sup> but are pure white below like the former.

Specimens to the number of 68 have been handled, by which the subjoined localities are represented:

*Arizona*.—San Francisco Mountain; Trumbull Spring, Trumbull Mountain; northwest of Fort Defiance; Fort Whipple; near Flagstaff; Fort Verde; Pine Springs, Colorado Forest; Supai Village, Cataract Creek; Oak Creek (Yavapai County); Baker's Butte; Prescott; Weber Creek, Tonto Basin; Little Colorado River, near mouth of Rio Puerco.

*New Mexico*.—Fort Wingate; Mimbres to Rio Grande; Silver City; Los Pinos; G. O. S. Ranch, Sapello Creek, Gila National Forest (Grant County); Manzano Mountains; Glenwood; Burley; Bear Spring Mountains; San Mateo Mountains; Summit of western end of Capitan Mountains; southwestern slope of Capitan Mountains; southeastern slope of Capitan Mountains; Mount Capitan; Datil Mountains; Cloudcroft; Copperton; Cliff; Salinas Peak, San Andres Mountains; San Pedro; Kingston; Gila; Burro Mountains; Shiprock; Fruitland; Zuñi Mountains.

*Texas*.—Guadalupe Mountains.

*Utah*.—Pine Valley; Riverview (San Juan County).

DRYOBATES VILLOSUS ORIUS, new subspecies.

*Chars. subsp.*—Resembling *Dryobates villosus leucothorectis*, but larger; lower parts usually brownish white, instead of pure white.

*Description*.—Type, adult male, No. 161978, U.S.N.M.; Quincy, California, February 10, 1892; E. Garner. Upper parts generally,

<sup>1</sup> See p. 612.

sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; occipital band scarlet; nasal tufts, a broad superciliary stripe, a broad rictal stripe produced to the side of the cervix, all of the two outer rectrices (including the dwarfed outermost one), most of the third, and terminal portion of the fourth, with entire lower parts of body, brownish white; a broad dorsal stripe, spots on both webs of all the remiges except the tertials, and small spots on a few of the upper wing-coverts, creamy white.

*Measurements*.—Male:<sup>1</sup> Wing, 125.5–132.5 (average, 129.1) mm.; tail, 69.5–83.5 (77); exposed culmen, 30–34.5 (31.9); tarsus, 21–24 (22.9); middle toe, 14–15.5 (15).

Female:<sup>2</sup> Wing, 125–128.5 (126.3); tail, 78.5–83 (80.1); exposed culmen, 27–27.5 (27.1); tarsus, 21–22 (21.5); middle toe, 14–15 (14.4).

*Type-locality*.—Quincy, California.

*Geographical distribution*.—Canadian and Transition zones in the mountains of the Great Basin, western United States: north to south central Washington; east to Camp Harney, eastern Oregon; and the Ruby Mountains, eastern Nevada; south to Arc Dome (Toyabe Mountains), central Nevada; and Placerville, central California; west to the western slopes of the Sierra Nevada in Butte and Tehama counties, and to Canyon Creek (Trinity County), middle northern California; and Fort Klamath, Diamond Lake, and Mount Hood, central Oregon. In winter it wanders casually westward as far as Puyallup, western Washington.

This new race may be readily distinguished from *Dryobates villosus monticola* by shorter wing and tail, brownish-tinged lower parts, and the even less white-marked, nearly always unspotted, wing-coverts; from *Dryobates v. harrisi*, of the northwestern coast region, by the very much more whitish, less smoky brownish color of the under surface and all the other light portions of the plumage. Some individuals of this form have pure white lower parts, and thus in color resemble *Dryobates villosus leucothorectis*, but their greater size will usually serve to distinguish them.

Of this race, 99 examples, from the subjoined localities, have been seen:

*California*.—Canyon Creek (Trinity County); Baird; Weber Lake; Weaverville; Mount Lassen; Carberry's Ranch (east central Shasta County); Mount Shasta; Lyonsville; Carbondale; Payne P. O. (Tehama County); Warmcastle Soda Springs, Squaw Creek Valley (near Mount Shasta); Enterprise (Butte County); Blue Canyon, Sierra Nevada; Echo (Eldorado County); Quincy; Placerville; Fyffe; Mount Tallac; Glen Alpine; Fort Crook; Lumpkin Mills (Butte

<sup>1</sup> Thirteen specimens, from California, Oregon, and Nevada.

<sup>2</sup> Four specimens, from the same States.

County); Silver Creek; mountains near Camp Bidwell; Slippery Ford (Eldorado County).

*Nevada*.—Truckee River; Glenbrook; Carson City; Arc Dome, Toyabe Mountains.

*Oregon*.—Fort Klamath; Camp Harney; Diamond Lake; Paulina Lake; Tule Lake; Mount Hood; Whiskey Creek (Klamath County).

*Washington*.—Puyallup.<sup>1</sup>

DRYOBATES VILLOSUS HYLOSCOPUS Cabanis and Heine

*Dryobates hyloscopus* CABANIS and HEINE, Mus. Hein., vol. 4, pt. 2, 1863, p. 69 (note).

*Chars. subsp.*—Like *Dryobates villosus orius*, but decidedly smaller.

*Measurements*.—Male:<sup>2</sup> Wing, 118.5–125.5 (average, 121.7) mm.; tail, 70–76.5 (73.2); exposed culmen, 28.5–32.5 (30.6); tarsus, 21–22 (21.6); middle toe, 13–14.5 (13.8).

Female:<sup>3</sup> Wing, 114.5–122 (117.8); tail, 67–77 (73.7); exposed culmen, 26.5–28 (27.2); tarsus, 19.5–21 (20.4); middle toe, 12.5–13.5 (13).

*Type-locality*.—San José, California.

*Geographical distribution*.—Canadian and Transition zones in the mountains of southern California and northern Lower California: south to the San Pedro Martir Mountains, northern Lower California; east to the Cuyamaca Mountains and the San Bernardino Mountains, central southern California; and the Grapevine Mountains, middle eastern California; north, in the Sierra Nevada, to the White Mountains; and through the coast ranges to Cahto and to Snow Mountain (Colusa County), in northwestern California.

The subspecies *Dryobates villosus hyloscopus*, as here restricted, differs from *Dryobates villosus harrisi* in decidedly smaller size, and very much less deeply smoky brownish lower parts and other light areas.

Unfortunately the type of *D. v. hyloscopus* came from San José, California, in an area intermediate between the very small birds of northern Lower California and the large representatives of *Dryobates villosus orius* from northeastern California. In such a case it seems proper to consider, as we do here, the extreme development of the race as really typical, to which the type, like other intermediate specimens, is referable. Examples from southern and central western California (San Diego County to Cahto) are, like the type, somewhat larger than those from northern Lower California (length of wing in the male averaging about 123.5 mm.), and verge toward *Dryobates villosus orius*. Birds from the Piute Mountains, southern California, are white below, and incline somewhat toward the Arizona *Dryobates villosus leucothorectis*.

<sup>1</sup> Not breeding at this locality.

<sup>3</sup> Six specimens, from the same locality.

<sup>2</sup> Ten specimens, from Lower California.

Ninety-two specimens of this form have been seen, by which the following localities are represented:

*California*.—San Bernardino Mountains; San Jacinto Mountains; Pine Flats, on North Fork of San Gabriel River (Los Angeles County); Volcan; Santa Barbara; Santa Ysabel; southern Sierra Nevada; Pine Valley (San Diego County); Strain's camp, San Gabriel Mountains; Sierra Madre Mountains (Los Angeles County); Piute Mountains (Kern County); Monterey; Pacific Grove; Santa Cruz; Nicasio; Cahto; Tejon Mountains; Fort Tejon; Tejon Valley; Paicines (San Benito County); Bear Valley (San Benito County); Snow Mountain (Colusa County); Mount Sanhedrin; Berryessa; Mount Whitney; Sargent; Preston Peak; White Mountains; Isabella, South Fork of Kern River; Kern River, 25 miles above Kernville; Walker Pass, western slope; Cuyamaca Mountain.

*Lower California*.—Piñon, western slope of San Pedro Martir Mountains; La Grulla, San Pedro Martir Mountains; Hanson Laguna, Hanson Laguna Mountains; 60 miles south of Campo; Santa Ulalia.

DRYOBATES VILLOSUS ICASTUS, new subspecies.

*Chars. subsp.*.—Similar to *Dryobates villosus hyloscopus*, but bill much smaller, and wing slightly longer.

*Description*.—Type, adult male, No. 163914, U.S.N.M., Biological Survey Collection; El Salto, Durango, Mexico, July 21, 1898; E. W. Nelson and E. A. Goldman. Upper parts generally, sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; occipital band scarlet; nasal tufts, superciliary stripe, a broad rictal stripe produced to the side of the cervix, throat, breast, and upper abdomen, brownish white; a broad dorsal stripe, spots on both webs of primaries, and on inner webs of secondaries, with all of the two exterior rectrices (including the dwarfed outermost one), most of the third, and terminal portion of the fourth, lower abdomen, and crissum, creamy white.

*Measurements*.—Male:<sup>1</sup> Wing, 117–128 (average, 123.5) mm.; tail, 67.5–76 (71.6); exposed culmen, 25.5–30.5 (28.1); tarsus, 20–22.5 (20.8); middle toe, 12.5–15 (13.6).

Female:<sup>2</sup> Wing, 119–128.5 (123.6); tail, 70–82.5 (74.9); exposed culmen, 23–28 (25.3); tarsus, 18–21 (20); middle toe, 11.5–14 (12.9).

*Type-locality*.—El Salto, Durango, Mexico.

*Geographical distribution*.—Transition and Canadian zones in the mountains of northwestern Mexico and contiguous portions of the southwestern United States: north to Pinal County, southeastern Arizona; and Animas Peak (Animas Range), southwestern New Mexico; west to El Puerto, eastern Sonora; Sierra Madre near Guadalupe y Calvo, southwestern Chihuahua; El Salto, southwestern

<sup>1</sup> Seventeen specimens, from Arizona, Sonora, Chihuahua, Coahuila, Durango, and Zacatecas.

<sup>2</sup> Ten specimens, from Chihuahua, Coahuila, Jalisco, and Durango.

Durango; and Sierra de Nayarit, eastern Tepic; south to Huajimic, southeastern Tepic; Bolaños, northern Jalisco; and Plateado, southwestern Zacatecas; east to Carneros, southeastern Coahuila; Bustillos, west central Chihuahua; and Pacheco, northwestern Chihuahua.

This bird is decidedly smaller than *Dryobates villosus leucothorectis*, as well as noticeably smoky-tinged on the under surface, instead of pure white; and it is in size so very much inferior to *Dryobates villosus orius*, that it is readily distinguishable.

Birds from Zacatecas, northern Jalisco, and eastern Sonora are identical in size with those from the type-locality in Durango. Specimens from Coahuila (Carneros and Sierra Guadalupe) are somewhat smaller—about the size of *Dryobates villosus intermedius*—(wing of male averaging about 118.5 mm.), but are so much paler below that they are best referred to the present race. Examples at hand from southeastern Arizona (north to Pinal County) and extreme southwestern New Mexico (Animas and San Luis ranges) are somewhat less smoky brownish below, but average fully as small as those from Durango, and also belong here. The birds from Chihuahua, to judge from the six of each sex examined, are larger than those from any other part of the range of this subspecies and average as follows:

*Male*.—Wing, 126.1 mm.; tail, 73; exposed culmen, 29; tarsus, 20.8; middle toe, 14.2.

*Female*.—Wing, 124.8; tail, 75.6; exposed culmen, 25.9; tarsus, 20.1; middle toe, 12.6.

Specimens examined, 48, from localities as below:

*Arizona*.—Santa Catalina Mountains; Pima County; Pinal County; Huachuca Mountains.

*New Mexico*.—Animas Peak, Animas Mountains (Grant County); western side of San Luis Mountains, near the United States and Mexican boundary line.

*Chihuahua*.—Sierra Madre, near Guadalupe y Calvo; Colonia Garcia; Pacheco; Rancheria de los Apaches; Mound Valley; Piños Altos; 30 miles west of Miñaca; Bustillos; San Luis Mountains.

*Coahuila*.—Sierra Guadalupe; Carneros.

*Durango*.—El Salto; Arroyo del Buey.

*Jalisco*.—Bolaños.

*Sonora*.—El Puerto.

*Zacatecas*.—Valparaiso Mountains; Plateado; Sierra Madre.

#### DRYOBATES VILLOSUS INTERMEDIUS Nelson.

*Dryobates villosus intermedius* NELSON, Auk, vol. 17, 1900, p. 259.

*Chars. subsp.*—Resembling *Dryobates villosus icastus*, but smaller, and much darker below.



*Measurements.*—Male: <sup>1</sup> Wing, 119–122.5 (average, 120.7) mm.; tail, 70.5–74 (71.8); exposed culmen, 28–28.5 (28.3); tarsus, 20–21.5 (20.8); middle toe, 13.5–14 (13.7).

Female: <sup>2</sup> Wing, 116–120.5 (118.2); tail, 74; exposed culmen, 25–25.5 (25.2); tarsus, 20.5; middle toe, 13–13.5 (13.2).

*Type-locality.*—Villar, San Luis Potosi, Mexico.

*Geographical distribution.*—Upper Austral Zone in the mountains of Tamaulipas and San Luis Potosi: northeast to Victoria, Montelunga, Galindo, and Miquihuana, southwestern Tamaulipas; and southwest to near Jesus Maria, southwestern San Luis Potosi.

Like the races of some other species that inhabit the region occupied by *Dryobates villosus intermedius*, this form has a rather limited distribution. Subsequent investigation may, however, somewhat extend its range.

Six examples have been seen, from the localities that follow:

*San Luis Potosi.*—Villar; mountains near Jesus Maria.

*Tamaulipas.*—Miquihuana; Victoria.

DRYOBATES VILLOSUS ENISSOMENUS, new subspecies.

*Chars. subsp.*—Similar to *Dryobates villosus intermedius*, but smaller, and ventral surface darker.

*Description.*—Type, adult male, No. 185785, U.S.N.M., Biological Survey Collection; Omilteme, Guerrero, Mexico, May 25, 1903; E. W. Nelson and E. A. Goldman. Upper parts generally, sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; occipital band scarlet; nasal tufts, a broad rictal stripe prolonged to the side of the cervix, all of the two outer rectrices (including the dwarfed outermost one) except a small basal spot, most of the third, and terminal portion of the fourth, throat, breast, and upper abdomen, light smoky brown, the tail rather paler; superciliary stripe, a broad dorsal stripe, spots on the interior webs of primaries and secondaries, and small spots on outer webs of same (except innermost secondaries), lower abdomen, and crissum, brownish white.

*Measurements.*—Male: <sup>3</sup> Wing, 111–121 (average, 116.7) mm.; tail, 64.5–77 (70.1); exposed culmen, 25–28.5 (26.4); tarsus, 20–21.5 (20.6); middle toe, 13.5–14.5 (14).

Female: <sup>4</sup> Wing, 111–116 (113.2); tail, 65–71.5 (69.1); exposed culmen, 20–24 (21.7); tarsus, 18.5–20 (19.2); middle toe, 12–13.5 (12.7).

*Type-locality.*—Omilteme, Guerrero, Mexico.

*Geographical distribution.*—Transition Zone in the mountains of southwestern Mexico, in the States of Guerrero, Michoacan, and

<sup>1</sup> Three specimens, from the Mexican States of Tamaulipas and San Luis Potosi.

<sup>2</sup> Two specimens, from the same States.

<sup>3</sup> Six specimens, from the Mexican States of Michoacan, Guerrero, and Jalisco.

<sup>4</sup> Eight specimens, from the same States.

southern Jalisco: southeast to Amula and the vicinity of Chilpancingo, central Guerrero; north to Nahuatzin and Patzcuaro, northwest central Michoacan; and west to the Sierra Nevada de Colima, southern Jalisco.

The present race is most closely allied to *Dryobates villosus jardinii*, from Vera Cruz, with which it practically agrees in size, but it is nearly always much paler on the sides of head and neck, on the dorsal stripe, and under surface. There are, however, occasional specimens which, at first sight, appear to be like *D. v. jardinii*, but these are never as deeply colored as the darkest examples of that form, or of *Dryobates villosus hylobatus*,<sup>1</sup> particularly on the posterior lower parts, throat, and light dorsal stripe. In having such a wide range of individual color variation this race resembles *Dryobates villosus extimus*. Four birds from the Sierra Nevada de Colima, southern Jalisco, are larger than the others examined (wing of two males averaging 119.5 mm.), and verge somewhat toward *Dryobates villosus icastus*.

Of this form 14 specimens have been examined, from localities as follows:

*Guerrero*.—Omiteme; mountains near Chilpancingo.

*Jalisco*.—Sierra Nevada de Colima.

*Michoacan*.—Nahuatzin; Patzcuaro; Mount Tancitaro.

#### DRYOBATES VILLOSUS HARRISI (Audubon).

*Picus harrisi* AUDUBON, Birds Amer. (folio), vol. 4, 1838, pl. 417, figs. 8, 9.

*Chars. subsp.*—Resembling *Dryobates villosus enissomenus*, but very much larger; lower surface more deeply colored.

*Measurements*.—Male:<sup>2</sup> Wing, 124–136 (average, 127.8) mm.; tail, 73.5–84 (78.3); exposed culmen, 29–35 (31.7); tarsus, 22.5–25 (23.4); middle toe, 15–16 (15.4).

Female:<sup>3</sup> Wing, 120–128 (124); tail, 74–82.5 (76.9); exposed culmen, 26–31 (28.2); tarsus, 21–23.5 (22.1); middle toe, 14–15.5 (14.8).

*Type-locality*.—Near Fort Vancouver, State of Washington.

*Geographical distribution*.—Canadian and Transition zones in the Pacific coast region of Alaska, British Columbia, and the northern United States: north to Chichagof Island and Chilcoot, southeastern Alaska; east to Boca de Quadra, coast of extreme southeastern Alaska; Hope and Agassiz, southwestern British Columbia; Keechelus Lake and Fort Vancouver, western Washington; Portland and Crater Lake, western Oregon; and south (excepting Prince of Wales Island, Alaska, and the Queen Charlotte Islands, British Columbia) to Humboldt Bay, northwestern California. In winter it wanders as far south as Monterey, central California.

<sup>1</sup> See p 617

<sup>2</sup> Fourteen specimens, from Alaska, British Columbia, Washington, Oregon, and California.

<sup>3</sup> Twelve specimens, from the same localities.

This subspecies is remarkably uniform over its entire range, there being practically no difference in either size or color between birds from Alaska and those from northern California. Neither is individual variation as great as in most of the dark forms of the species.

I have examined 120 examples of this race from the subjoined localities:

*Alaska*.—Loring; near Killisnoo, Admiralty Island; Sitka; Howkan.

*British Columbia*.—Agassiz; Goldstream; Port Moody; Comox; Lund; Huntington; Victoria; Departure Bay, Vancouver Island; Union Bay, Vancouver Island; Mount Lehman; New Westminster; Saturna Island; Roab's ranch, Hope.

*California*.—Carson's camp, Mad River, Humboldt Bay; Crescent City; Nicasio;<sup>1</sup> St. Helena.<sup>1</sup>

*Oregon*.—Portland; Tillamook; Crater Lake; Sumner; Beaverton; Columbia River; St. Helen; Logan; Seaside; Newport.

*Washington*.—Suez; Tenino; Tacoma; Lapush; Neah Bay; Keeche-lus Lake; Mount Vernon; Kalama; Whidbys Island; Seattle; Hump-tulips; Fort Steilacoom; Nisqually Flats; South Park (King County); Shoalwater Bay; Ilwaco; Fort Vancouver; Ocosta.

DRYOBATES VILLOSUS PICOIDEUS Osgood.

*Dryobates picoideus* OSGOOD, North Amer. Fauna, No. 21, 1901, p. 44.

*Chars. subsp.*—Much like *Dryobates villosus harrisi*, but wing and bill shorter; white dorsal stripe more or less barred or spotted with black; white outer pairs of tail-feathers nearly always with black subterminal spots, occasionally even bars.

*Measurements*.—Male:<sup>2</sup> Wing, 122.5–125 (average, 123.8) mm.; tail, 77.5–82.5 (80); exposed culmen, 26–27 (26.5); tarsus, 23–23.5 (23.3); middle toe, 15.5–16 (15.8).

Female:<sup>3</sup> Wing, 121–127 (124); tail, 76–81 (79.2); exposed culmen, 25.5–27.5 (26.4); tarsus, 22–24 (22.6); middle toe, 14.5–15.5 (14.8).

*Type-locality*.—Cumshewa Inlet, Moresby Island, Queen Charlotte Islands, British Columbia.

*Geographical distribution*.—Canadian Zone in the Queen Charlotte Islands, British Columbia; and Prince of Wales Island, extreme southeastern Alaska.

The birds from Prince of Wales Island, Alaska, are not typical of *Dryobates villosus picoideus*, but in color characters, chiefly those of the back, are somewhat intermediate between this form and *Dryobates villosus harrisi*. The black spots on the inner webs of the white rectrices are a character that appears in only two other races—*Dryobates villosus piger*, and occasionally *Dryobates villosus terraenovae*.

<sup>1</sup> Not breeding at this locality.

<sup>2</sup> Two specimens, from British Columbia.

<sup>3</sup> Five specimens, from British Columbia and southern Alaska.

One specimen from the Queen Charlotte Islands, British Columbia, has black bars on the white outer tail-feathers, as well marked as in *Dryobates pubescens*. In its black barred or spotted dorsal stripe, *Dryobates villosus picoideus* resembles no other form of the species, excepting, curiously enough, *Dryobates villosus terraenovae*, from Newfoundland, and shows an interesting resemblance to some races of *Picoides americanus*.

Eight specimens have been available, representing the following localities:

*Alaska*.—Kasaan Bay, Prince of Wales Island.

*British Columbia*.—Cumshewa Inlet, Moresby Island, Queen Charlotte Islands; Skidegate, Graham Island, Queen Charlotte Islands.

DRYOBATES VILLOSUS HYLOBATUS, new subspecies.

*Chars. subsp.*—Similar to *Dryobates villosus enissomenus*, but decidedly larger, and darker on lower parts.

*Description*.—Type, adult female, No. 154895, U.S.N.M., Biological Survey Collection; Huitzilac, Morelos, Mexico, January 1, 1893; E. W. Nelson. Upper parts generally, sides of head and neck, a broad malar stripe, wings, and middle tail-feathers, black; superciliary stripe, connected occipital band, small spots on both webs of primaries and most of secondaries, and on interior webs of innermost secondaries, creamy white; two outer rectrices (including the dwarfed outermost one) excepting a small basal spot, with most of the third, and the terminal portion of the fourth, light smoky brown; nasal tufts, a broad rictal stripe prolonged to the side of the cervix, a broad dorsal stripe, and the entire lower surface of the body, deep smoky brown.

*Measurements*.—Male:<sup>1</sup> Wing, 123.5 mm.; tail, 75–77 (average, 76); exposed culmen, 26–27.5 (26.8); tarsus, 19.5–20 (19.8); middle toe, 13–14 (13.5).

Female:<sup>2</sup> Wing, 116.5–121.5 (118.8); tail, 71.5–75.5 (73.3); exposed culmen, 23–25 (24); tarsus, 20–20.5 (20.3); middle toe, 12.5–14.5 (13.6).

*Type-locality*.—Huitzilac, Morelos, Mexico.

*Geographical distribution*.—Canadian and Transition zones in the mountains of central Mexico, in the States of Mexico, Morelos, and western Puebla: north to the City of Mexico, central Mexico (State); west to the Volcan de Toluca, west central Mexico (State); south to Huitzilac, northwestern Morelos; and east to near Huejotzingo, central western Puebla.

From *Dryobates villosus intermedius* this new subspecies may be distinguished by its somewhat longer wing and tail, shorter bill, and

<sup>1</sup> Two specimens, from the Mexican States of Mexico and Morelos.

<sup>2</sup> Four specimens, from the same States.

very much more deeply smoky brown lower parts, dorsal stripe, and sides of head and neck.

Adults of *Dryobates villosus hylobatus* examined are all very deeply colored, excepting one male from Ajusco, State of Mexico, which is indistinguishable in color from *Dryobates villosus intermedius*, but its large size indicates that it is properly referable to *D. v. hylobatus* as an example of extreme individual variation.

Nine specimens examined, from the localities given below:

*Mexico*.—Northern slope of Volcan de Toluca; Ajusco; City of Mexico.

*Morelos*.—Huitzilac.

DRYOBATES VILLOSUS JARDINII (Malherbe).

*Picus (Leuconotipicus) jardinii* MALHERBE, Rev. Zool., Oct., 1845, p. 374.

*Chars. subsp.*—Like *Dryobates villosus hylobatus* in color, but decidedly smaller.

*Measurements*.—Male:<sup>1</sup> Wing, 114–118 (average, 116.2) mm.; tail, 67–74 (69.7); exposed culmen, 24–27 (25.6); tarsus, 20–21.5 (20.7); middle toe, 13.5–14 (13.9).

Female:<sup>2</sup> Wing, 110; tail, 62; exposed culmen, 23.5; tarsus, 19; middle toe, 13.

*Type-locality*.—"Mexico," i. e., central Vera Cruz.

*Geographical distribution*.—Canadian and Transition Zones in the mountains of eastern Mexico in the States of Vera Cruz, Puebla, and Oaxaca: north to Las Vigas, central Vera Cruz; west to Mount Orizaba, eastern Puebla; and south to the city of Oaxaca, central Oaxaca.

A single adult male from Mount Orizaba, Puebla, is very much paler below than other examples, and is practically identical in color with *Dryobates villosus intermedius*, yet it is much too small for that race, and is doubtless merely another instance of the great range of individual variation to which the dark races of *Dryobates villosus* are subject. The writer has seen no specimens from the State of Oaxaca, but records of the species from Tonagua, central northern Oaxaca,<sup>3</sup> and the city of Oaxaca,<sup>4</sup> belong probably under the present subspecies.

The type of Malherbe's *Picus jardinii*<sup>5</sup> was an immature bird, as its abnormally small measurements clearly indicate, and came from "Mexico." When this author subsequently more fully described the form,<sup>6</sup> he had other specimens whose measurements proclaim them

<sup>1</sup> Four specimens, from the Mexican State of Vera Cruz.

<sup>2</sup> One specimen, from the same State.

<sup>3</sup> Hargitt, Cat. Birds Brit. Mus., vol. 18, 1890, p. 238.

<sup>4</sup> Boucard, Proc. Zool. Soc. Lond., 1859, p. 388.

<sup>5</sup> Rev. Zool., 1845, p. 374.

<sup>6</sup> Mon. Pictées, vol. 1, 1861, p. 103, pl. 25, figs. 4, 5.



to belong to birds from Vera Cruz rather than from the State of Mexico. It seems best, therefore, to restrict the name *jardinii* to the bird from central Vera Cruz.

Five examples have been seen, from the subjoined localities:

*Puebla*.—Mount Orizaba.

*Vera Cruz*.—Mirador; Jalapa; Las Vigas.

**DRYOBATES VILLOSUS SANCTORUM** Nelson.

*Dryobates sanctorum* NELSON, Auk, vol. 14, 1897, p. 50.

*Chars. subsp.*—Resembling *Dryobates villosus jardinii*, but much smaller; ventral surface decidedly darker.

*Measurements*.—Male:<sup>1</sup> Wing, 107–111.5 (average, 109.4) mm.; tail, 63–65 (63.9); exposed culmen, 23–25.5 (24.2); tarsus, 17–20 (19.2); middle toe, 13–14.5 (13.7).

Female:<sup>2</sup> Wing, 99.5–108.5 (104.6); tail, 57.5–65 (60.9); exposed culmen, 20–23 (21.1); tarsus, 17.5–19 (18.3); middle toe, 12.5–13.5 (13.1).

*Type-locality*.—Todos Santos, Guatemala.

*Geographical distribution*.—Transition Zone in the mountains of Chiapas, Mexico, and of Guatemala: west to Pinabete, southern Chiapas; north to San Cristobal, central Chiapas; and Vera Paz, Guatemala; and east to the Volcan de Fuego, southeastern Guatemala.

This race is apparently little subject to individual variation. Specimens from the State of Chiapas, Mexico, are identical in size with those from Guatemala. Although first described as a full species, *Dryobates sanctorum* is clearly but a subspecies of *Dryobates villosus*, since all characters, by reason of the individual variation of contiguous races, ultimately fail to prove trenchant.

Sixteen specimens have been examined, from the following localities:

*Chiapas, Mexico*.—Pinabete; Juncaná; San Cristobal; Canjob.

*Guatemala*.—Volcan Santa Maria; Hacienda Chancol; Calderas, Volcan de Fuego; near Tecpam.

**DRYOBATES VILLOSUS FUMEUS**, new subspecies.

*Chars. subsp.*—Similar to *Dryobates villosus sanctorum*, but very much paler below and on rectrices; dorsal stripe very decidedly more whitish—in fact, barely smoky except posteriorly.

*Description*.—Type, adult male, No. 101240, American Museum of Natural History; San Rafael del Norte, Nicaragua, April 6, 1907; William B. Richardson. Upper parts generally, sides of head and neck, a broad malar stripe, wings and middle tail-feathers, black; broad occipital band scarlet; nasal tufts, a broad rictal stripe produced to the side of the cervix, all of the two outer rectrices (including the

<sup>1</sup> Seven specimens, from Guatemala and the Mexican State of Chiapas.

<sup>2</sup> Seven specimens, from the same localities.

dwarfed outermost one) except a small basal spot, with most of the third, and terminal portion of the fourth, and the entire lower surface of body, somewhat rufescent smoky brown; superciliary stripe, broad dorsal stripe, spots on both webs of remiges (except outer webs of tertials and innermost secondaries), brownish white.

*Measurements*.—Male:<sup>1</sup> Wing, 106–109.5 (average, 108.1) mm.; tail, 60–63 (61.6); exposed culmen, 24.5–26 (25.1); tarsus, 18.5–19.5 (19.1); middle toe, 12–14 (13.1).

Female:<sup>2</sup> Wing, 101–108.5 (105.3); tail, 55.5–64 (59.8); exposed culmen, 21.5–24 (22.9); tarsus, 18–19 (18.7); middle toe, 13–13.5 (13.3).

*Type-locality*.—San Rafael del Norte, Nicaragua.

*Geographical distribution*.—Upper Tropical Zone in the mountains of central northern Nicaragua.

As at present known, this new race has a very limited range in northern Nicaragua, but it probably extends over much, if not all, of the mountain region of this country, and for at least a considerable distance into the mountains of western Honduras. The record of *Picus jardinii* from Siquatepeque, Honduras, southeast of Lake Yojoa,<sup>3</sup> may belong to either *Dryobates villosus sanctorum* or *Dryobates villosus fumeus*.

Of this form, twelve examples have been available, representing the localities below:

*Nicaragua*.—San Rafael del Norte; Ocotal; Jinotega.

DRYOBATES VILLOSUS EXTIMUS (Bangs).

*Dendrocopus villosus extimus* BANGS, Proc. New Engl. Zool. Club, vol. 3, 1902, Jan. 30, 1902, p. 33.

*Chars. subsp.*—Resembling *Dryobates villosus fumeus*, but much smaller, and lower parts darker.

*Measurements*.—Male:<sup>4</sup> Wing, 97.5–106.5 (average, 102.8) mm.; tail, 54.5–63 (58.6); exposed culmen, 22–26.5 (24.9); tarsus, 19–21 (19.8); middle toe, 12–15 (13.8).

Female:<sup>5</sup> Wing, 98–105 (102.1); tail, 49–64 (58.4); exposed culmen, 20–23.5 (21.9); tarsus, 18–19.5 (18.7); middle toe, 12–14 (13.1).

*Type-locality*.—Boquete, Chiriqui, Panama.

*Geographical distribution*.—Upper Tropical Zone in the mountains of Costa Rica and western Panama: east to Chiriqui, western Panama; and northwest to the Volcan de Irazu, central Costa Rica.

There is great individual variation in the shade of the lower surface in this race, from a very deep smoky brown to a color almost whitish;

<sup>1</sup> Seven specimens, from Nicaragua.

<sup>2</sup> Five specimens, from the same country.

<sup>3</sup> Taylor, Ibis, 1860, p. 119.

<sup>4</sup> Nineteen specimens, from Panama and Costa Rica.

<sup>5</sup> Eighteen specimens, from the same countries.

but both these extremes are exceptional. Birds from Panama average very slightly paler below, and, in the male, slightly smaller, but these differences are too insignificant and too inconstant to warrant the recognition of another subspecies. The comparison of size can be easily made by means of the following average measurements:

	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
Nine males from Panama.....	101.7	57.3	25.3	20.0	14.1
Ten males from Costa Rica.....	103.7	58.5	24.6	19.7	13.5
Eight females from Panama.....	102.3	59.3	22.3	19.0	13.3
Ten females from Costa Rica.....	102	57.8	21.7	18.5	13.1

I have seen 95 specimens of this race, from the following localities:

*Costa Rica*.—Santa Maria de Dota; Volcan de Irazu; Rancho de Rio Jimenez, Volcan de Irazu; Burgos, Volcan de Irazu; Coliblanco, Volcan de Turrialba; La Estrella de Cartago; Las Vueltas de Dota; Lagunaria de Dota; Azahar de Cartago; El Copey de Dota; La Palma de San José; Cervantes; Escazú; La Hondura; Ojuras de Terraba.

*Panama*.—Chiriqui; Boquete.